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Succeeding with Succulents

By Cathy Caldwell | February 2018 - Vol. 4 No. 2





*Container of succulents at Ruth Bancroft Garden
Photo: Catherine Caldwell*

A few years ago I received some succulents as Christmas gifts. Then I proceeded to kill all but one of them. And that poor little survivor — well, it just barely survived. Being a reasonably capable gardener and house-plant nurturer, I figured it was just a matter of providing the right soil. So I headed off to the garden center and grabbed a bag of soil mix labeled especially for cactus.



Ruth Bancroft Garden
Photo: Catherine Caldwell

Weren't cactus and succulents the same? Well, a year spent in this new soil mix did absolutely nothing for my struggling little succulent. Meanwhile, succulents were appearing all over, many in elegant containers bursting with various assortments of succulents — all in good health. That's what I wanted to create, but clearly I needed to learn a thing or two.

The first thing I learned was on a tour of a public garden famous for its succulents and cacti — the Ruth Bancroft Garden in Walnut Creek, California. Practically the first words out of our guide's mouth were: "All cacti are succulents, but not all succulents are cacti." Could this explain why my succulent was unhappy in cactus soil?

Actually, succulents — even the ones that are NOT cacti — have a lot in common with cacti. Most cacti and succulents are adapted to dry habitats, and are found in arid regions all over the world. Most are able to store water, enabling them to survive long dry periods. The word "succulent" means "juicy" — and, in truth, that's exactly what they are, thanks to their ability to store water in their leaves and/or stems. And that brings me to another clarification: succulents and cacti can be classified as "xerophytes" — plants that thrive in dry conditions. But if you're a plant, being "juicy" is not the only way to adapt to an arid climate, so a **xerophyte** may or may not be a succulent plant. Drought-ridden California seems to be headquarters for



Opuntia ficus-indica at the Ruth Bancroft Garden

gardens devoted to xerophytes, the Ruth Bancroft Garden being one example.



Large *Agave franzosinii* dwarf Ruth Bancroft herself at the Ruth Bancroft Garden in Walnut Creek, California.

By the way, if you get a chance to visit, you'll be wowed by the size of the succulents and cacti in this famous garden where they can live outdoors all year. And what an inspiration it is to us home gardeners. That's because it started out as a home garden and with small plants. Nowadays it serves as an educational center for those wishing to create beautiful gardens that can thrive in dry conditions.

Bear in mind, however, that **the term succulent does NOT refer to a genus or species.** A number of plant families include plants that have water-holding characteristics, and the more well-known ones are listed below.

Some Succulent Plant Families and their Common Names:

- Agavaceae -Agave
- Aizoaceae -Mesembs/Ice Plant
- Aloaceae -Aloe
- Apocynaceae -Periwinkle
- Cactaceae -Cactus
- Euphorbiaceae
- Fouquieriaceae -Ocotilo
- Piperaceae -Peperomia
- Crassulaceae - Stonecrop



The familiar "Crown of Thorns" (*Euphorbia milii*)
Photo: courtesy of wikimedia

Most of us are already familiar with many succulents — *sedums*, ice plant (*delosperma*), jade plant (*Crassula arborescens*), the snake plant (*Sansevieria trifasciata*), the medicine plant (*Aloe barbadensis*), the century plant (*Agave americana*), and the flowering Kalanchoes (*Kalanchoe blossfeldiana*). If you're like me, you want to try the more exotic varieties.

Cultural Requirements

The key to succulent success boils down to the right soil and the right amount of water at the right time. Let's look at soil first.

Succulents need perfect drainage! Ordinary soil is probably not going to cut it, either. In nature, most cacti and succulents are found growing in open, well-drained sandy soil. To succeed, I was going to have to re-create these conditions in my indoor pots. **A mix of one part potting soil and one part coarse sand is usually porous enough.** And surprise! — there's no need to add organic material; succulents are adapted to the "weathered soils" of their native habitats and these soils are very low in humus.



A mix of succulents by artist Wren Ross. Photo: Catherine Caldwell

My research reveals that many succulent growers have favorite formulas, but all use soil mixes that contain enough gritty material to permit rapid drainage. Some use sharp sand, others use perlite, and others use slate chips or pea gravel. A mineral of some kind is common to most soil mix formulas. But keep in mind that a pre-mixed cactus soil mix is not necessarily a good medium for a non-cactus succulent — as I learned to my sorrow. Some cactus soil mixes will stay wet too long for succulents, probably because they may not contain enough sand or other sharp mineral material.

One professional grower uses 2/3 ordinary potting soil (NO moisture holding additives) and 1/3 slate chips or pea gravel for indoor plants, and a 50/50 ratio of soil to slate chips for outdoor plants. Another recommended soil mix formula is 2 parts potting soil, 1 part perlite, and 1 part small size gravel, such as pumice, turface, or crushed granite. Remember that the sand in a mix should be coarse-grained such as builders sand or so-called "sharp" sand.

The key to success of any soil mix for succulents is **crumbly structure**. To test your soil mix, moisten it and then squeeze with your hands: the mixture should NOT form a lump, but instead should crumble loosely.

Water

Succulents do need water, but they cannot be allowed to sit in water, a condition that will kill many succulents. Drainage is a key, as mentioned above, so allow plants to dry out between waterings.

How often to water? That depends upon the season, or to be more accurate, with the natural growth cycle of the succulent. Basically a succulent should be kept warm and well-watered during the natural growth cycle and cool and dry at other times of the year. In our area, this means that during the winter, water your indoor succulents only once every couple of weeks. When plants are actively growing — spring and summer, for most succulents — you'll need to water them once a week, especially if you've moved them outside. In spring and summer, water until it pours out of the drainholes — and of course, drain holes are essential!

After a few minutes, dump out the water in the tray or dish underneath the pot. Water again only when the soil gets dry. During the dormant period, apply water very sparingly. Let the soil get dry and then apply enough water to slightly dampen the soil. Overwatering during the dormant period can lead to rotting. extension.illinois.edu

Light

Although succulents prefer lots of light, they can usually adapt to the low light of homes. For best results,

give succulents bright light for most of the day, such as a south-facing window, or at least a half-day of sun as in an east-facing window. Remember to rotate plants weekly if they are bending toward a light or window.

During the summer, succulents like to be outdoors, and they'll look gorgeous on patios, decks and porches. You may want to place them where they'll get just a bit of shade. Some varieties are not happy with a lot of hot, direct sun.

Most succulents have very low nutrient requirements. Cacti need fertilizer only once or twice a year during the late spring or summer when they are actively growing. Use a houseplant food that is higher in phosphorus than nitrogen, and dilute it to **half the recommended rate**. Other succulents may be fertilized in the same manner three or four times **during the brighter months**.

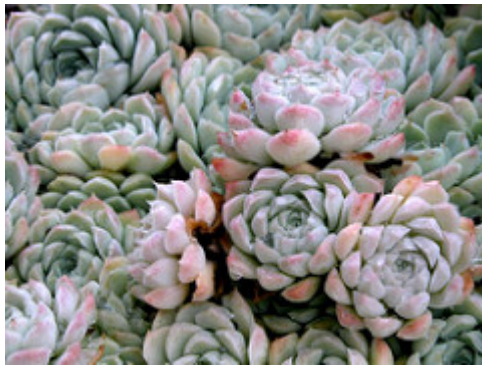
Pests are rarely a problem for succulents, so long as they're receiving the right amount of light and water. If they have mealybugs or scale, the problem can be controlled by wiping them off with alcohol-dipped cotton swabs.



Varieties of Succulents to Try

Most of the succulents that intrigued me in California are not hardy here in central Virginia, which is why you'll mostly see them sold as houseplants. Of course, you're probably familiar with sedums that ARE adapted to cold, such as the popular *Sedum* 'Autumn Joy' (recently reclassified as *Hyloteophium spectabile*), and the genus *Sempervivum*, which contains some winter-hardy ground covers. But the focus here is on the non-hardy types that will spend the winter inside. For starters, I suggest you look at the succulents recommended by the New York Botanical Garden. NewYorkBotanicalGarden.org/libguides ("Succulents In Your Home: Some Popular Succulents to Grow Indoors"), some of which are mentioned below.

Echeverias are mostly Mexican natives (some live in Texas and South America, too) in the family Crassulaceae, a large family containing many popular genera of succulents often found at nurseries and garden centers. Most *echeverias* grow in higher elevations in Mexico where the humidity is low and the temperatures rarely get hot. Soils there are well-draining, and some species live only on cliff faces and steep slopes where excess water drains off anyway. Keep in mind that these are **not** tropical plants.



Echeveria albicans
Photo: Ruth Bancroft Garden

Echeverias (etch-eh-Veer-ee-ah) have rosettes of white, pink, and shades of blue. Most remain a few inches high and wide. Don't let water sit in the rosettes or it may lead to rot. Remove any dead, lower leaves.

Echeveria elegans is one of several plants referred to as "hens-and-chicks." But it works better as a houseplant because, unlike the more common *Sempervivum* genus, the rosettes do not die after flowering. This plant needs the brightest light you can provide. *E. elegans* produces numerous, smaller offshoots surrounding the parent plant.

Echeveria derenbergii, commonly known as "painted lady," also has small rosettes that produce many offshoots. Like most *echeverias*, it needs plenty of light. In the photo below, the "painted ladies" are blooming, but that's probably because they're in the care of a botanical garden that is providing the necessary conditions. Getting an indoor succulent to flower can be tricky. You may be able to bring cacti and succulents into bloom if you can re-create their native winter conditions. This requires good light, dry soil, and cool nights — which might be available on a windowsill.



Echeveria derenbergii
 Photo: Jardin Botanique de Montréal

Echeveria lilacina has silvery-grey leaves that form a rosette and is quite small, reaching only about 6 inches tall.. This species is slow growing. Flowers are pale pink or coral-colored.

If you're not afraid you'll get way too excited about succulents, take a look at **frilly echeverias** at the online journal Pacific Horticulture, www.pacifichorticulture.org ("Frilly Echeverias: the Fairest Succulents of Them All").



Echeveria "Strawberry Heart"

Sedum morganianum is one I'm eager to try. It is commonly known as donkey's tail or burro's tail. Like its common name, this *sedum* resembles a long tail and is usually grown trailing from a hanging basket, which helps with the drainage issue.



Sedum morganianum, known as burro's tail or donkey's tail. Photo courtesy of Flickr.



Sedum morganianum in flower. Photo courtesy of wikimediacommons.

Sedum morganianum is part of the family Crassulaceae, native to southern Mexico and Honduras. It is not hardy in our area, so it will have to reside in your house during the winter. Filtered light and protection from wind are recommended.

There are several popular species of *senecio* (sin-Ess-ee-o), usually with tubular steel blue or grayish green leaves, often known by names such as “chalk fingers” or “blue chalk sticks.” Although most are small, a few get as tall as a foot. If they get too tall, you can pinch them back, which will promote branching.



Senecio vitalis 'Serpents' (Asteraceae), (“blue chalk fingers,” growing at the Missouri Botanical Garden. Photo: James Steakley

Senecio rowleyanus, commonly known as “string of pearls” or “string of beads” is a succulent vine of the aster family. It is native to dry areas of southwest Africa. Talk about a show-stopper!



Senecio rowleyanus (“string of pearls” or “string of beads”). Photo: Leonora Enking.



Haworthia fasciata

Haworthias are particularly easy to grow indoors, since they will tolerate even lower light and less water than most succulents. Zebra plant (*Haworthia fasciata*) has thick, dark green, fleshy leaves that arise from low on the plant, and not surprisingly, the leaves have white stripes. Zebra plant has shallow roots, so it does well in a shallow pot. You’ll need to repot every year or two because plants need to get rid of old roots to grow new ones. It only grows about 5 or 6 inches tall and wide.

Aeoniums are another popular genus known for their rosettes of fleshy leaves, but take a look at *A. arboreum* — its rosettes are on tree-like branches, that may get as tall as 3 feet in height! A recommended variety is *Aeonium arboreum* ‘Atropurpureum’.



Aeonium arboreum 'Atropurpureum'

There's more to *kalanchoes* than the popular Christmas gifts in the grocery stores. The so-called "panda plant" — *Kalanchoe tomentosa* — is another good choice for an indoor succulent.

Propagation: Want more succulents? Many can be propagated from a single leaf off the parent plant! This is true for some crassulas, kalanchoes, echeverias, sedums and aeoniums.

chemung.cce.cornell.edu/resources/care-of-non-hardy-cacti-and-succulents

Winter seems like the perfect time to focus on indoor plants. And what better time to get creative with colorful and dramatic succulents. So long as you give your succulents the proper soil, water and light, you'll succeed. Now that I understand the needs of my struggling little succulent — which I've now identified as an *echeveria* — I feel certain the little fellow is going to thrive. So excuse me while I go mix up some sharp sand and potting soil.



The popular "panda plant" — Kalanchoe tomentosa

Photo: courtesy of wikimedia



My struggling succulent
Photo: Catherine Caldwell

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The Ornamental Garden in February

By Susan Martin | February 2018 - Vol. 4 No. 2



February By the Numbers

Many gardeners endure February as the month that makes them wait too long for spring. Our hopes are raised by tantalizing activity in the garden, only to be dashed by a late winter snow. In fact, the numbers explain this ricochet between hope and impatience during the shortest, yet seemingly longest, month. [According to data collected between 1981 and 2010](#), February is the second coldest month of the year after January in Charlottesville, with an average high of 49 and an average low of 29. It is also the snowiest month, with an average snowfall of 5.8"! December averages 4.3" and January 3.4." March, however, is truly spring-like, with an average high temperature of 58 and an average low of 36. Its average snowfall is 2.1" and with those temperature ranges, snow time on the ground is fleeting. No wonder we want to get out from under the "burden" of February into the promise of spring!

A Poet's Look at February

Just as the numbers give evidence to our perceptions, the poets give voice to our moods. Margaret Atwood describes the bleakness of the month:

*February, month of despair,
with a skewered heart in the centre.*

Gertrude S. Wister takes a more hopeful view:

*The flowers of late winter and early spring
occupy places in our hearts
well out of proportion to their size*

I think we can all relate to that!

So, what is the impatient gardener to do?

Prepare Garden Tools

Make sure your tools are prepared for the job ahead:

- **Clean pruners** of any dirt and grime. It's a good practice to oil your pruners after heavy use. This will prevent rust from accumulating on the blades. When pruning, wipe pruning blades often, ideally between each cut, at least between plants. Use a weak bleach solution to clean pruning blades.
- **Sharpen pruners.** Sharp blades make the job easier for you, and clean cuts are much better for your plants. Ragged edges can provide entryways for diseases and pests.
- **Service lawnmowers.** Avoid the service rush once the weather turns warm by getting a tune up and sharpening blades so that you're ready for that first mow.
- **Ensure good condition of hoses and sprinklers.** Take advantage of warm days to make sure all your **planters and saucers** are clean and ready for spring plants.

If you've always wanted to "professionalize" your garden with **plant identification markers**, now is the time to start. If you don't have markers, purchase weather-resistant metal or ceramic markers. You can also make your own, but wood will need to be replaced. Plastic is lightweight and needs to be reinserted fairly regularly. The type of material depends on your time horizon and budget. But the important thing is to start!

Prune Dormant Shrubs

Late winter is the time to prune deciduous bushes that are still dormant, generally those that bloom in late summer or fall. These shrubs bloom on new wood, and so produce foliage and blooms after pruning. Early spring-blooming shrubs such as forsythia and azaleas, however, should be pruned immediately after blooming. These shrubs bloom on old wood, and if pruned before blooming, the buds will be cut off and you'll need to wait another year without pruning to enjoy their flowers. Now is the time to prune berry bushes such as blueberries, currants and gooseberries. Remove about a third of the oldest stems and cut them back to the ground. There are many very helpful VCE publications on pruning. For a list of recommended pruning times for specific shrubs, see [A Guide to Successful Pruning, A Pruning Calendar](#).

Cut Back Perennials



Hellebores

The February blooms of **hellebores** are one of the first and most encouraging signs of spring. Once the plants are blooming, trim back the old foliage to encourage new growth. The trimming also makes the blooms more visible. Some have blooms that are tucked away under the foliage like hidden gems, and other have blooms that are more upright and visible.

Cut back **liriope** now to help encourage new growth for the spring.

Towards the end of the month, check **ferns** for signs of new growth. Leave the old fronds to protect the crown from harsh weather. When the new frond curls start to appear, carefully trim off the dead fronds.

Cut back dormant **ornamental grasses**. See the [February 2017](#) issue of *The Garden Shed* for tips on specific grasses.

Start Seeds

February is an excellent month to start preparing for planting seed. [According to the University of Virginia Climatology office](#), there is a 10% chance of frost (32°) in our area after April 16 and a 10% chance of dipping below 36° after April 28. Some seeds are better started indoors, while some seed can be sown directly outdoors. Divide your seed packets accordingly. Count back from the last frost date using the germination time for each type of plant you intend to sow indoors. If it takes 10 days on average to germinate, and about 6 weeks to get to a size appropriate for transplanting outside, add those times together and count back. Be prepared to protect tender transplants from chilly weather that strays from the average—nature does that sometimes!

Treat Invasive Species

There is activity in the late-winter early-spring landscape that is not welcome and we need to get energized for battle. **National Invasive Species Awareness Week is February 26-March 2, 2018.** Invasive species means a species that is nonnative to the ecosystem under consideration, and whose introduction causes or is likely to cause harm to the environment, the economy, or the health of humans. This is a large, complex topic, but resolve to set aside some time this February to familiarize yourself with invasive species in our area. Go to the [PRISM website](#) for information on identifying and treating invasive species. Be aware that late winter to early spring is a good time to target certain species such as **Autumn Olive, Porcelainberry, Privet and Tree-of-Heaven** with the basal bark method. **Basal Bark:** Apply a concentrated herbicide in horticultural or vegetable oil, to plant stems of 6 inches or less in diameter. Spray or paint all stems from ground level up to about 12 inches. This is most



Porcelainberry-pretty but invasive

effective in January and February or from May to October. The topic of invasive species is planned for a future article in *The Garden Shed*.

Provide Natural Food Sources for Birds

In the [January 2018 issue](#) of *Tasks and Tips*, there was a discussion of different seeds and types of feeders to help birds through the cold winter months. Early spring is a good time to identify shrubs and trees to plant in our landscape so as to provide natural sources of nuts and berries. A starter list published by the [Cornell Lab of Ornithology](#) recommends tree, vines, and shrubs that produce fruits attractive to birds. It is helpful to identify those that offer spring or summer fruiting as opposed to fall and winter fruiting, so that you can provide a more consistent, year-round natural source of food.

Some plants provide fruits and seeds. Some varieties of crabapples, for example, have smaller fruits that are easier for birds to swallow. The flowers and flower buds of crabapples in spring are also edible and the fruit lasts throughout the winter.

Different shrubs and trees are attractive to different types of birds, so you may want to consider the types of birds you especially want to attract. Trees also provide nesting sites. The size of the shrub or tree should be evaluated for its fit within your landscape. Coniferous trees such as the Eastern red cedar, *Juniperous virginiana*, and spruces, *Picea* species, offer fall fruiting and winter-persistent fruit. Evergreen needles also attract insects that are a good food source for birds in early spring. These trees are very large, however, and so will only be appropriate to large landscapes. The Eastern red cedar was featured in the [December 2017](#) issue of *The Garden Shed*.



Sparrows in crabapple tree

An example of a deciduous shrub that provides fall fruit that lasts through winter is Winterberry holly, *Ilex verticillata*. This hardy shrub is tolerant of wet conditions and grows from 5' to 15' tall. Scarlet berries are important food for winter resident birds. Both male and female plants produce flowers, but only fertilized flowers on female winterberry shrubs produce berries. In general, one male winterberry holly is adequate for pollinating three to six or more female plants, so allow enough space for multiple plants. For more information on this beautiful shrub, see the [December 2015](#) issue of *The Garden Shed*.

As you enjoy the activity around your bird feeder this February, make a list of the birds you especially enjoy or birds you would like to attract. Then spend some time researching trees and shrubs that attract those birds. Compare that list to your current collection of trees and shrubs and see what will complement and add to your overall landscape. It's a great opportunity to "remodel" or refresh your landscape with a new goal in mind: provide a natural source of food for birds in all four seasons.

Sources

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Using Seed Packet Information to Help your Garden Grow

By Ralph Morini | February 2018 - Vol. 4 No. 2



Gardening is a great pastime. But successful gardening takes work and it seems much more like work if your plants do poorly. The best (and happiest) gardeners I know improve their chances for success by taking the time to plan their gardens. This means deciding what they want to grow, selecting seeds carefully, planting them in the right conditions and caring for them as advised by suppliers. Making a quick pass through a seed rack in a garden center and then buying simply based on the picture and plant description is likely to lead to more effort and a less satisfying harvest than is achievable with a more careful selection. If you are prone to shortcutting seed selection, you can improve your gardening results by putting seed data to use. Here is a quick summary of some of the helpful information provided on seed packets, in catalogs, and on websites and how to interpret and use it to your advantage.

Descriptive Terms Defined

There are several terms commonly used to characterize seeds that you want to understand:

- **Open-pollinated** seeds have been pollinated naturally by bees or wind. Open-pollinated varieties reproduce consistently generation to generation and are the seeds of choice for seed savers.
- **Heirlooms** are typically open-pollinated seeds of older plant varieties. There is no single definition of an “heirloom” plant, but one that seems to make sense is origination **prior to 1951** when hybrid seeds were introduced. Heirlooms are prized for various characteristics, typically flavor and appearance. They have survived for a long time, but are not likely to be as disease resistant as hybrid varieties. Heirloom seeds can be saved.
- **Hybrids** are the product of controlled fertilization between two different plant varieties of the same species to reproduce desirable qualities of both. **F1, first generation hybrids, yield plants that are uniform and predictable based on parent characteristics.** F2 or higher number hybrids are products of crossing successive hybrid generations and do not produce consistent offspring. Hence hybrids are not for seed savers. **F1 hybrids are desirable** however, in that they can improve a plant’s appearance, taste, disease resistance and other characteristics noted by the grower.
- **Organic** seeds come from parent plants grown without the use of chemical pesticides and insecticides. Non-organic seed presents small risk to seed users given the tiny quantities of chemicals present. However reduced chemical use provides a benefit to the environment and to workers on seed farms that justifies supporting organic seed growers.
- **Genetically Modified (GMO)** seeds are the products of external gene modification rather than natural processes, to produce specific traits, usually related to disease or insect resistance. This is a more invasive intervention than hybrid pollination, and GMO seeds are still a controversial item. They are most commonly sold to commercial growers for heavily-planted crops like corn, beets and summer squash, but are spreading into new product areas. Formal legal definitions may allow GMO seeds to be called organic if they are produced in an insecticide- and pesticide-free environment. It is wise to review specific manufacturer’s definitions of organic or look for a specific “non-GMO” notation if you have concerns about using GMO seed.
- Some seeds are noted as **All American Selections**. These are seed varieties that are tested and approved by an independent non-profit testing organization and judged to be superior from a growing or eating standpoint. You can check the organization out at <https://all-americanselections.org/>.

Type of Seed

If there is no mention of treatment on the packet, the seeds inside should be naked seeds. However there are a couple of surface modifications that are worth understanding:

- **Treated** seeds have been coated with fungicide or insecticide to improve germination by protecting the seed from rotting or insect attack while in the ground. Treated seeds are often distinctively colored for identification purposes.
- **Pelleting** refers to a coating on small, hard-to-handle seeds like lettuce, carrots and onions. The coating is usually an inert material designed to make them easier to handle and distribute in the soil. The coating may be synthetic or a natural clay. Organic pelleting meets the requirements of the NOP (National Organic Program of the USDA). Pellets absorb water quickly and split open on hydration. Pelleted seeds have a shorter shelf life than unpelleted seeds and should be planted in the year packed.

Plant-Specific Terms

Tomatoes may be identified as **Determinate** or **Indeterminate**. **Determinate** plants are compact and generally don't require any support. They set a fixed amount of fruit that ripens at about the same time, after which the plant dies down. The single harvest time is essential for mechanical harvesting, and may help the home gardener aiming for a single large harvest for canning or freezing. **Indeterminate** varieties produce continuously until frost. They have a vining habit and need to be supported. Their steady production over a longer period is good for enjoying fresh produce over the course of the growing season. Both have their place. Make your choice or mix and match based on your intended use.

Cucurbits, specifically cucumber and some summer squash may be identified as **Gynoecious** and/or **Parthenocarpic**. **Gynoecious** varieties are bred to increase the proportion of female (fruit-bearing) flowers, thus increasing yield potential. **Parthenocarpic** varieties set fruit without pollination. Developed mainly for greenhouse growers, they may also have benefits for backyard gardeners.

Disease resistance

Seed growers typically offer multiple varieties of each vegetable seed they sell. An important difference between varieties is disease resistance. This may interest the new gardener and is especially valuable for experienced gardeners who can identify diseases that have been past problems. The information may be built into the variety name or listed separately. **A seed's disease resistance is summarized using one or more short abbreviations.** A couple of examples for tomatoes are LB for late blight and PM for powdery mildew. There are way too many for a complete listing here, but catalogs and websites provide comprehensive lists of definitions for their products. If you have a history of fighting diseases with particular vegetables, you owe it to yourself to investigate seed options that reduce susceptibility to the diseases you have encountered.

Other Valuable Guidance

Other commonly included information doesn't need interpretation, but is important to note. Light, height and habit requirements affect where to place specific plants within the garden. Hardiness Zone and Time to Maturity provide guidance for both spring and fall planting timing. Spacing is important, whether you grow in rows or an intensive planting arrangement in a raised bed. Soil type, planting depth, indoor germination and transplanting requirements are obviously important to success as well.

Beyond the Packet

Seed packets are space-limited. Catalogs offer additional information and for many gardeners, provide a much-anticipated winter diversion. They include a broader seed offering than garden center seed racks, plus garden tools and supplies. Websites take data availability a step further, offering everything in the catalog plus articles and video content with helpful advice on anything and everything gardening related. While there is always a marketing aspect to grower information, it can be insightful and is easily double checked or built on by accessing extension websites like the [Virginia Agricultural Extension](#) site whose research and publications are science-based with no market driven agenda.



Vegetables Carrots Mokum
Mokum
 Pelleted (F1) Carrot
 Seed
 Product ID: 2180P

Product Images

Slender "pencil carrots."
 Conventional seed with NOP-compliant pelleting. Along with Nelson, top-rated for flavor among the early varieties. Attractive, slender roots are great for early bunches. A bit earlier than Nelson, more slender; the same length (5 1/2-6 1/2") and color, and with similar high sugar and brittle tenderness. Holds sweet taste even in warm weather. Short tops. Widely adapted. Early Nantes type. Avg. 29,000 seeds/lb. Packet: 250 seeds.

GROWING INFORMATION

CULTURE: Carrots require well-drained soils, with a pH range of 6.0-6.8. Deep, loose, and fertile sandy loams and peat soils with good moisture-holding capacity grow the straightest and smoothest roots. Pelleted seed requires a little extra attention when it comes to watering, as it performs best with consistent, moderate soil moisture throughout the germination period. An initial watering will split or dissolve the pellet, but if the soil is allowed to dry out before the germination period is over, the seed may receive insufficient moisture for optimal germination.

PLANTING: Sow from early spring to midsummer, 3/4" apart (about 16 pellets/ft.), 1/4-1/2" deep, in 2" wide band, or single rows 16-24" apart. For minimum soil compaction, use raised beds with 2 or 3 rows 16-24" apart, beds 5-6" on center. Sprinkle the soil surface to keep moist. Don't allow soil to crust before the emergence of seedlings which takes 1-3 weeks, depending on temperature and moisture. If necessary, thin young seedlings to 2"-2" apart, depending on type or root size desired. Keep weed-free by fine weeding and shallow hoeing. To prevent greening, cover exposed crowns.

DISEASES: Blights can reduce yield and quality. *Atractoria* blight shows as brown-black lesions edged with yellow on leaf margins beginning on oldest leaves. Leaflets may shrivel and die. *Cercospora* blight first appears as small dark spots with yellow margins on the younger leaves and stems. To prevent blights, practice a 3-year crop rotation. Copper fungicides can be employed as a preventive measure or control.

INSECT PESTS: Carrot rust flies and wireworms. Provide fertile growing conditions and avoid ground recently in sod if possible. Exclude adult insects with fabric row covers.

HARVEST: Carrots may be dug any time after they reach the desired size. Generally the best harvest period lasts about 3 weeks (longer in cool, fall weather), after which time the roots may crack or the taste and appearance may decline. Make a few sowings at 3 week intervals for a continuous supply of tender carrots at their prime.

STORAGE: Plant carrots intended for winter storage about 100 days before expected fall frost. Carrots store best at 32°F (0°C) and 95% relative humidity.

CARROT TYPE: Each type is identified in the description. Nantes are medium length and cylindrical. The Shipping/Innocent types have the extra length and durability required in conventional packaged carrots, and perform the best in deeply worked soil. Chantenays are top-shaped and suitable for shallow or heavy soil. Kuroda types have thick, tapered roots and can be darker than average in color. They are suitable for tropical winter production (CA, TX, FL) or temperate summer production (where winters get below 45-50°F (7-13°C)).

PELLET STORAGE: Pelletizing offers many advantages, but the pelleting process also shortens the shelf life of the seed. We recommend using pelleted seed within one year of purchase. If you need to store pelleted seeds until planting, protect them from heat and humidity in a cool, dark, dry place. If you prefer to store your seed in the refrigerator, be sure to place the seed in an airtight container to protect it from fluctuations in humidity.

AVG. SEEDING RATE: 348,480 pellets/acre at 16 pellets/foot, 3/4" spacing in rows 24" apart, or 16,000 pellets/1,000 foot row.

PELLET SIZE: 11.5 or 13.0.

SEED SPECS: PELLETS/LB.: 16,700-29,200 (avg. 22,600).

PACKET: 250 pellets sows 15' at 16 pellets/ft.

LATIN NAME
 Daucus carota var. sativus

DAYS TO MATURITY
 36 baby, 54 full size

LIFE CYCLE
 Annual

HYBRID STATUS Hybrid (F1)

Seed packets provide helpful information ==>Web pages provide that and more

Putting the Information to Use

Now that we all understand what everything means, how do we make the best use of it in a home garden? It really comes down to creating a garden plan to put the right plants in the right place at the right time(s), while following intelligent cultural practices to enhance the seed and plant quality and optimize harvest. A quick outline of what this entails is:

- Sketch out the garden to scale
- Decide what you want to grow, based on your personal likes.
- Determine how much to grow of each plant, being mindful that most of us tend to grow more than we can eat, and often more than we can give away.
- Lay out the garden spaces by plant type. Be conscious of cultural practices like crop rotation and inter-planting that can help minimize disease and insect problems.
- Make your seed selections, again based on preferences, conscious of how seed characteristics like disease resistance can benefit the garden.
- Are you a fresh tomato eater for whom indeterminate plants make the most sense, or a preserver who wants a single major harvest, or does a mix of both suit you best?
- Get planting dates right and determine whether you should plant indoors and transplant or seed directly into the garden. Seed growers often offer advice in this area. The VA Cooperative

Extension publication 426-331, "Vegetable Planting Guide and Recommended Planting Dates" is also a useful tool. When used in conjunction with seed Time to Maturity data, it allows a gardener to put a good schedule together for the spring, summer and fall planting and harvest seasons.

- Keeping a written record of everything is a must for a serious gardener. It is the best way to maintain planting discipline, both for a specific season and from year to year.
- It also makes sense to identify the plant problems that arise during the garden year. You want to know when cabbage pests arrive so you and your preferred control method can be ready for them. You want to know which diseases affect your tomatoes so you can look for the specific resistant varieties in next year's plants or seeds.

In my case, I execute my plans best when they are broken down into sections or pieces. Having a reasonably detailed plan and sticking to it, makes the work more manageable and the probability of success higher.

Using all the tools available

Vegetable gardening adheres to the old maxim that anything worth doing is worth doing well. Gardening is work in any case. It can be mindful, healing, and extremely satisfying. It can also be frustrating and disappointing when it doesn't go well. The information available from seed growers can be very helpful in understanding what will grow in your garden and what you have to do to grow it successfully. Integrated into a well-managed garden plan, it adds to your probability of success and satisfaction, this year and in the future.

SOURCES & HELPFUL LINKS:

"How are hybrid and open-pollinated vegetables different?" extension.oregonstate.edu/gardening

"Seed For the Garden," pubs.ext.vt.edu/426-316.pdf (Pub.No. 426-316, Diane Relf and Alan McDaniel).

"Plant Propagation From Seed," pubs.ext.vt.edu/426 (Pub.No. 426-001, Diane Relf and Elizabeth Ball)

"Vegetable Planting Guide and Recommended Planting Dates," pubs.ext.vt.edu/426-331/426-331_pdf (Pub.No. 426-331).

"Fall Vegetable Gardening," pubs.ext.vt.edu/426-334.pdf (Pub.No.426-334).

"Planning the Vegetable Garden," pubs.ext.vt.edu/426-312.pdf Publication 426-312, Alex Niemera, Extension Horticulturist, VA Tech.

"Understanding the Seed Packet," uky.edu/files/spring2017newsletter

"Understanding the Seed Packet," extension.unl.edu/Seeds.pdf (Pub. G1953, Univ.Nebraska, Institute of Agriculture and Natural Resources).

"Seed Catalogs 101," pmgarchives.com/article/seed-catalogs-101/ (Cleve Campbell, "The Garden Shed," January 2015).

Daphnes – The Hopeful Fragrance of Spring

By Susan Martin | February 2018 - Vol. 4 No. 2



It might not seem like the best advice to plant a shrub that was described by the horticulturalist, Michael Dirr, as sometimes dying suddenly “for no explicable reason.” But that warning can be a tempting gauntlet to throw down before an intrepid gardener. Dirr also said that even a single-flowering season of a daphne would justify its use.

The genus name of daphne was originally used for laurel (*Laurus nobles*). It was later transferred to this genus which has between 70-95 species of deciduous and evergreen shrubs in the family Thymelaeaceae, native to Asia, Europe and North Africa. (A species is a variant that evolves naturally from related forebears, surviving and eventually stabilizing because it is better adapted to its environs. A **cultivar** is a variant produced by humans, by crossing natural **species** and favoring those with some desired trait.) There are daphnes suitable to southern climates, northern climates, partial shade, sunny rock gardens, and even containers.

Common Characteristics

While the *Daphne odora* are restricted to more southern climates up to zone 7, the *D. mezereum*, *D. alpina*, and *D. cneorum* species, and the Burkwoodii cultivars, can withstand winters up to zones 4-5. There are general characteristics, however, that typify this genus regardless of planting zone. These shrubs are known for being slow to establish and downright perverse about being moved once settled. Their winter hardiness can be bolstered by selecting sites in more protected areas out of the path of biting wind. Daphnes generally require well-drained, sandy-humusy soil with a neutral pH of 6.5 to 7. Some gardeners add sand or gravel to assure good drainage. Poor drainage is a major cause of plant failure in the landscape. In areas of heavy clay soils, raised beds can be beneficial. Established plants have some drought tolerance, but soils should not be allowed to dry out. Summer mulching helps keep the roots cool. All parts of the plant, including leaves and berries, are poisonous, so it is truly deer resistant. Pruning requirements vary by cultivar. Potential diseases include botrytis, leaf spots, canker, twig blight, crown rot, root rot and virus. Potential insect pests include aphids, mealybugs and scale.

Daphne Species and Cultivars

The strongly aromatic blooms of the species *Daphne odora* appear in the sometimes bleak, gray weeks of late February to mid-March, just when the increasingly impatient gardener needs an encouraging sign of spring.



D. odora 'Aureomarginata'

D. odora or winter daphne is hardy only to about 10 degrees F and is suited to planting zones 7-9. Its winter hardiness can be bolstered by placing the shrub in a more protected area out of the path of biting winds; plants weakened by winter injury are more susceptible to disease. In hot climates, plants benefit from afternoon shade because their foliage is vulnerable to sun scorch. Summer mulching is recommended to help keep the roots cool. This smaller-sized shrub, about 3' to 4' tall and 2' to 3' wide, does not usually require any pruning which is fortunate because its mature wood does not heal well from cuts. You can cut the flowers, however, without injuring the plant, and the blossoms keep well in water. The deeply scented flowers are reddish-purple with insides of pale pink to white in terminal inflorescences. Flowers are followed by red fruits in July-August, but fruits are infrequently produced on cultivated shrubs.

The most common *D. odora* cultivar, '**Aureomarginata**,' has leaves with narrow, irregular yellow margins and terminal clusters of small flowers that are white inside, and deep, purplish pink outside. 'Aureomarginata' is also noted for having slightly better winter hardiness than other *D. odoras* and can grow to a height of 5 feet.

Daphne x burkwoodii '**Somerset**,' a cross between *D. cneorum* and *D. caucasica*, is suited to zones 5-8. This cultivar is a slow-growing, densely branched, deciduous shrub which typically grows 2' to 3' tall and 4' to 5' wide with a rounded, mounding habit. It features clusters of extremely fragrant, creamy white to pale blush-pink flowers in late spring which are followed by tiny red drupes in fall. Small, dense, oblong, bright green leaves often persist well into December with no fall color.



Daphne x burkwoodii 'Carol Mackie'

Daphne x burkwoodii '**Carol Mackie**,' a cross between *D. cneorum* and *D. caucasica*, will survive in zones 4-8. 'Carol Mackie' is most noted for its striking cream-edged variegated foliage that lasts well into December. This cultivar is a dense, slow-growing, deciduous shrub which typically grows 2' to 3' tall and 3' to 4' wide with a rounded, mounding habit. Fragrant clusters of pale pink flowers bloom in late spring followed by tiny red drupes. Once established, about ¼ of old growth should be pruned yearly to about 6" in height. 'Carol Mackie' prefers a neutral to slightly acidic soil pH.

D. mezereum, commonly called February Daphne because of its late winter flowers, is one of the hardiest of the daphne species. It grows in zones 4-7. This small deciduous shrub typically grows to 3' to 5' tall and as wide. A native of Europe and Western Asia, it was introduced into America in colonial times. It dislikes the hot, humid summers of the south and thrives in shaded, woodland areas of cooler-weather states. Although it prefers partial shade, it can tolerate full sun if the soil is kept uniformly moist. Oblanceolate (rounded apex and tapered base), dark green leaves are arranged spirally along the stems. Fragrant reddish-purple to pink flowers bloom in late March to early April prior to the emergence of the leaves. Flowers are followed by small fruits which mature in June.



D. mezereum

All parts of this plant are poisonous to humans if ingested; plant saps also typically cause skin irritations. Plant saps were once used in a rouge-like cosmetic until it was discovered that rosy cheeks were the result of blood vessel damage rather than the blush of good health. Birds can eat the berries without ill effects.



D. mezereum 'Alba'

***D. mezereum* f. 'Alba'** is an upright deciduous shrub with narrow, dull green leaves and very fragrant white flowers that bloom in late winter and early spring, prior to the emergence of leaves; the flowers are followed by yellow berries. The shrub prefers moderately fertile, well-drained (but not dry) soil, in sun or part shade. Aphids may be a problem; 'Alba' is also subject to gray mold (*Botrytis*) and a virus.

***D. mezereum* 'Alpina'** is a slow-growing, semi-prostrate form that eventually forms a gnarled compact shrub. White flowers, similar to the species, are produced in the spring. This mezeureum cultivar is different from *Daphne alpina*.

D. alpina is a deciduous prostrate species of daphne which can tolerate cold climates up to zone 5. The mid-green, simple oblanceolate leaves are alternate. The shrub produces panicles of white salverform flowers (trumpet-shaped flowers that start as a narrow tube and widen into a flared mouth) from May to June. The flowers give way to orange drupes. *D. alpina* prefers a sunny to half-shady situation in moderately moist soil of gritty loam.

D. cneorum, Rose Daphne, Garland Flower or Rock Daphne, is a prostrate species which grows from 6" to 12" tall with a spread to 3' or more. It tolerates climates as cold as zone 4. It is a slow-growing groundcover with alternative, very narrow, oblanceolate leaves. Its bright pink, fragrant flowers cover the shrub with a massive display in April and May and exude a sweet, intense fragrance. Prune after flowering; it may rebloom if sheared after first bloom. It prefers well-drained, moist, pH neutral soil in full sun to partial

shade. It can be subject to leaf spot, crown rotting and cankers. It gets its name 'Rock Daphne' because it is often grown in rockeries. This plant also does well and is very attractive in raised beds, border plantings, rock gardens, and containers.

D. cneorum 'Eximia' is an evergreen, prostrate shrub, growing to about 8' in height, with terminal clusters of fragrant, bright pink flowers opening from red buds, occasionally followed by brownish-yellow berries. The shrub can be grown in areas up to zone 5 in full sun to part-shade but is not reliably hardy in exposed conditions. This vigorous cultivar has gained the Royal Horticultural Society's Award of Garden Merit.

Garden Uses

Many of the daphnes are small, rounded shrubs which makes them quite effective as anchor plants in smaller gardens. The beautiful, highly fragrant blooms and variegated evergreen foliage of *D. odora* justifies its use as an eye-catching accent plant. Daphnes can also be massed in shrub borders as long as they are situated in protective sites. Good drainage is a necessity and so the plants are good candidates for raised beds. The smaller shrubs do well in containers and the prostrate forms are well-suited to rock gardens or used as fillers in foundation plantings. Daphnes should certainly be stationed in a spot where you can enjoy their fragrance. They offer a welcoming presence along an entry path, by the sides of porch, in a corner of a deck or patio, or any other gathering place or high-traffic area. Spend some time evaluating the proper site so that you don't need to move them once they're established. And then, breathe in deeply and enjoy!

Sources:

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Upcoming Events- Garden Basics Class

By Cathy Caldwell | February 2018 - Vol. 4 No. 2

Garden Basics Class - Starting from Seed

February 17 @ 2:00 pm - 4:00 pm

Starting vegetables and flowers from seed gives you many more choices that buying plants - and saves money. Now, ahead of the spring planting season, is the time to learn the best methods for seed propagation.

COST: FREE

HOW TO REGISTER: Send your contact information (name, address, phone number, and email address) and name of class (Garden Basics-To Prune or Not to Prune) to info@pmgarchives.com.

The Vegetable Garden- February

By Cleve Campbell | February 2018 - Vol. 4 No. 2

Well, January has come and gone, and those days warm enough for outdoor winter gardening tasks were few and far between. February will not only bring its fair share of cold, damp, and just plain miserable days but also that old feeling of anxiety, knowing I can no longer put off those gardening projects by waiting on that perfect day. As my list of tasks continues to grow, I await those occasional sunshine days that February will certainly bring, well aware that planting season is not far away. So here's a list of my February tasks:

- **Complete seed inventory, and run a germination test** on seeds stored from previous years to see if they still sprout. A little online research located numerous sites, including various seed companies that offer information on home seed germination testing. One such site, Oregon State University offered basic and simple instructions for "How to test your stored seed for germination," extension.oregonstate.edu. Handle seed packets carefully. Don't try simply rubbing the packet to determine a "feel" count; that can break the protective seed coating, thus reducing germination.
- **Review the "All America Selections" website** for new 2018 vegetable winners for possible planting candidates. all-americaelections.org/winners.
- **Complete seed catalog orders now before specific desirable varieties sell out** and order early in the month to take advantage of promotional offers of free seeds or discounts for early orders.
- **Clean and inventory seed flats;** soaking flats in a bleach solution of 10 parts water to 1 part bleach will kill disease-causing microorganisms.
- **Begin collecting containers** that can be used for transplants, such as styrofoam cups, yogurt and sour cream containers. For more information on collecting containers check out The Garden Shed article titled "[Recycled Seed-Starter Containers](#)".
- **Clean crusty clay pots** with a vinegar/bleach solution. To make the solution: add 1 cup each of white vinegar and household bleach to a gallon of warm water and soak the pots. For heavily crusted pots, scrub with a steel wool pad after soaking for 12 hours.
- **Inspect garden tools** such as garden sprayers, and tillers. It may be hard to locate some needed parts; however, by starting now, I'll have them before the start of the gardening season.
- **Sow seeds indoors for plants that can be transplanted in mid- to late March:** those include onion, broccoli, cauliflower, brussel sprouts, and cabbage.
- Monitor the soil temperature in the raised bed, and **be prepared to plant peas** once the temperature reaches 50-60° F.
- For an interesting ornamental plant and culinary addition, buy a plump unshriveled ginger root at the grocery store and plant it in a light sandy soil just under the surface in a 6"-8" pot. Place in a warm sunny window and keep it damp until shoots appear. Water more frequently and fertilize monthly with a high phosphorus fertilizer. Harvest in about eight months, saving a piece to replant. www.tropicalpermaculture.com/growing-ginger

- Continue pruning apple trees through February to help control diseases and insects, and remove all diseased wood from the site as trash or destroy it by burning. Also, remember **pruning tools** used to cut diseased wood **should be disinfected** with alcohol or a 10:1 (10 parts water to 1 part bleach) disinfecting solution before using again. For additional information, see Virginia Tech Publication 422-023. [pubs.ext.vt.edu/422-023](https://pubs.ext.vt.edu/422/422-023).

Thanks for dropping by The Garden Shed. We look forward to your visit next month.

Gratin with Potatoes and Leeks

By Cate Whittington | February 2018 - Vol. 4 No. 2



Originating in France, the term *gratin* simply refers to the culinary technique of topping baked ingredients with a browned crust. We often think of the classic gratin as one made with potatoes—and potatoes are certainly one of the most plentiful root vegetables in February. A browned crust may be achieved by adding breadcrumbs, cheese, egg, and/or butter. I like the addition of leeks to the following recipe by NY Times contributor Melissa Clark. Increase the amounts proportionately, depending upon the size of your gratin pan (any shallow dish will do), and your preference for how thick you want each slice of the pie to be. In my opinion, there is never too much cheese, so you may want to add more—I like a combination of Parmesan and Gruyere—or add more garlic and garnish with fresh thyme. Experiment to see what you like best. You may bake this a day ahead; cover and chill; bring to room temperature and reheat.



Ingredients

2 tablespoons unsalted butter, more for greasing the pan

2 large leeks, trimmed and halved lengthwise

1 ½ pounds peeled Yukon Gold potatoes

1 teaspoon kosher salt

½ teaspoon ground black pepper

2 thyme sprigs

1 cup heavy cream

1 fat garlic clove, finely chopped

1 bay leaf

¼ teaspoon freshly ground nutmeg

¾ cup Gruyère, grated

Directions

1. Heat oven to 350° degrees and butter a 2-quart gratin dish. Wash the leeks to remove any grit and slice thinly crosswise.
2. Using a mandoline or sharp knife, slice the potatoes into rounds, 1/8-inch thick. Toss with 3/4 teaspoon salt and 1/4 teaspoon pepper. Layer the rounds in the gratin dish.
3. Melt the 2 tablespoons butter in a large skillet over medium heat. Add leeks, remaining salt and pepper, and thyme. Cook, stirring, until leeks are tender and golden, 5 to 7 minutes. Discard thyme and scatter the leeks over the potatoes.
4. Add cream, garlic, and bay leaf to the skillet, scraping up browned bits of leeks from the bottom of the pan. Simmer gently for 5 minutes. Stir in nutmeg.
5. Pour the cream over the leeks and potatoes and top with the Gruyère. * Cover with aluminum foil and transfer to the oven. Bake for 40 minutes, then uncover and bake until the cheese is bubbling and golden, 15 to 20 minutes longer. Let cool slightly before serving.

*Alternatively, you may leave the cheese off for now, cook the foil-covered potatoes a bit longer (about 50 minutes), remove foil, add cheese, and run it under the broiler for 5-8 minutes, until bubbly.